



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,071	12/21/2001	Takeshi Yagi	1113-017/MMM	5313
	7590	03/30/2005	EXAMINER	
Ipsolon LLP 805 SW Broadway #2740 Portland, OR 97205			KIM, YOUNG J	
			ART UNIT	PAPER NUMBER
			1637	

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/029,071	YAGI, TAKESHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Young J. Kim	1637	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 12-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

L.

Art Unit: 1637

## **DETAILED ACTION**

### ***Preliminary Remark***

The Group and/or Art Unit location of your application in the PTO has been assigned to Art Unit 1637. All further correspondence regarding this application should be directed to Young J. Kim whose Group Art Unit is 1637.

### ***Election/Restrictions***

This application contains claims 12-17 drawn to an invention nonelected with traverse in Paper No. April 26, 2004.

It is noted that Applicants have amended the non-elected invention drawn to processes to be commensurate in scope of the examined product in accordance with *In re Ochiai*. The elected product, however, is not found allowable and hence, the restriction is maintained and the claims withdrawn from further consideration.

A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Drawings***

The drawings received on April 26, 2004 are acceptable.

### ***Claim Objections***

The objection of claims 3, 4, and 6 for containing the acronym, "CCD" made in the Office Action mailed on October 21, 2004 is withdrawn in view of the Amendment received on September 14, 2004.

*Claim Rejections - 35 USC § 112*

The rejection of claims 3, 4, 6, 7, and 9 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, made in the Office Action mailed on October 21, 2004 is withdrawn in view of the Amendment received on September 14, 2004.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

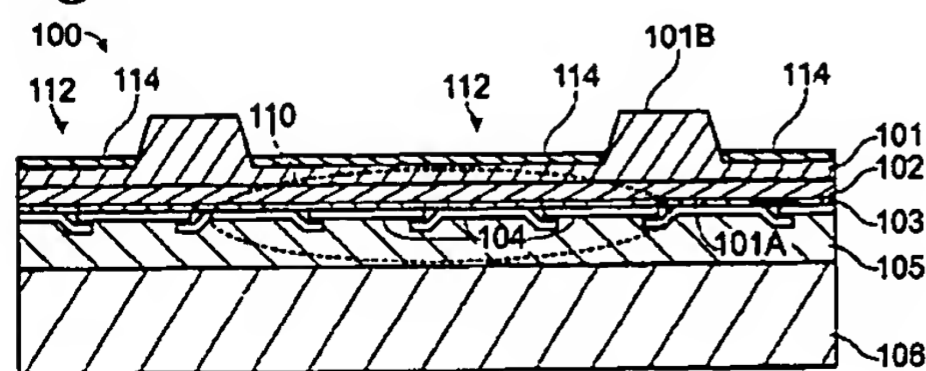
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a New Matter rejection.

Claims 3 and 4 have been amended to include the limitation drawn to the semiconductor substrate having a thickness of 10 to 20  $\mu\text{m}$ , the thickness of which is measured from the organic molecules probe disposition region to the photoelectric converter, thus the distance between the two elements.

Figure 1 describing the claimed device is shown as below:

Fig. 1



Section [0040] disclose that thickness "d1" is measured from surface "101B" to the bottoms of of the recesses "112", wherein the bottoms of the recesses "112" is disclosed being organic molecule

Art Unit: 1637

probe disposition region for fixing organic molecule probes (e.g., the DNA probes).

Section [0038] discloses that pixels “110” each have a photoelectric converter.

Thus, while the specification contains a proper written description for the claimed thickness when measured between the surface “101B” to the probe disposition region “112,” does not have written description support for the instant limitation, wherein the thickness is measured between probe disposition region “112” and the photoelectric converter “110”. As no support for this limitation could be found in the instant specification, and since claims as originally filed did not contain support for this limitation, the claim amendment contains New Matter.

***Claim Rejections - 35 USC § 102 – Maintained***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The rejection of claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Hollis et al. (U.S. Patent No. 5,846,708, issued December 8, 1998), made in the Office Action mailed on October 21, 2003 is maintained for the reasons of record.

Applicants' arguments presented in the Amendment (the responsive amendment) received on September 14, 2004 have been fully considered but they are not found persuasive for the reasons of record.

Applicants contend that the instant claims recite that the photoelectric converter and the organic molecule probe disposition region are disposed on respective first and second main sides

Art Unit: 1637

of a semiconductor substrate (page 11, 4<sup>th</sup> paragraph), differing from the polymer substrate of Hollis et al., concluding that claims are not anticipated.

In contrast, Hollis et al., disclose that the test sites (element 12; Figure 1) of their device are formed, “in a *semiconductor wafer using semiconductor photolithographic processing techniques*” (column 4, lines 33-34).

Additionally, Hollis et al., disclose that their CCD array genosensor reads out charge formed beneath detector gate electrode (element 220 of Figure 15; column 9, lines 18-20), wherein said genosensor is described as being formed by growing a field oxide layer of SiO<sub>2</sub>, wherein CCD gate electrodes are formed (column 9, lines 16-19).

The instant specification discloses the phrase, “the semiconductor (e.g., silicon) substrate,” [0047] evidencing that silicon is a semiconductor material.

The device of Hollis et al. comprises the following elements:

(a) a substrate having a side wherein recesses are for an organic molecule probe disposition region (hybridized DNA) and the opposing side having a CCD region in alignment with the probe disposition region to perform optical imaging functions just as in the instant application (Figure 1); and

(b) an optical filter layer corresponding to the probe disposition region that blocks the excitation light (column 9, lines 45-53), wherein the thickness of the semiconductor substrate between the probe disposition region and the CCD region is disclosed as being equivalent to the depth of the recesses, and wherein the semiconductor substrate comprises a plurality of recesses or wells (Figures 15 and 16).

With regard to claims 3 and 4, Hollis et al., while not disclosing the actually claimed thickness range of 10 to 20  $\mu\text{m}$ , do disclose that wells are formed in the layer 216, directly above the gate electrode 220. Hollis et al. also disclose that CCD array which reads out charge formed beneath detector gate 220 when light photons ( $h\nu$ ) impinge on non-hybridize test sites (column 9, lines 1-3), as well as disclosing the light photons induce a charge in the silicon wafer beneath the electrode 220, wherein these charges are read out of the CCD array.

The instant specification discloses that the device of the instant invention contains a thickness of 10 to 20  $\mu\text{m}$ , “so that short wavelength light with a large absorption coefficient is almost completely absorbed and converted into electrons.” [0047].

Given this disclosure, it is determined that Hollis et al. necessarily has the required thickness as the device of Hollis et al. is disclosed both devices are disclosed as detecting the built up charges induced by a given light of a given wavelength.

According to *In re Best* 195 USPQ 430, 1997, the court stated that, “Patent Office can require applicant to prove that prior art products do not necessarily or inherently possess characteristics of his claimed product wherein claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicant” (pp. 430).

Therefore, Hollis et al. anticipate the invention as claimed.

### ***Conclusion***

No claims are allowed.

Art Unit: 1637

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Inquiries***

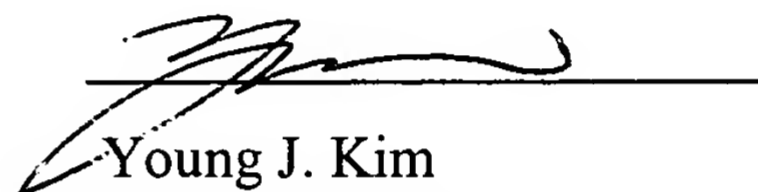
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m. The Examiner can also be reached via e-mail to Young.Kim@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Primary Examiner in charge of the prosecution, Dr. Kenneth Horlick, can be reached at (571) 272-0784. If the attempts to reach the above Examiners are unsuccessful, the Examiner's supervisor, Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official

Art Unit: 1637

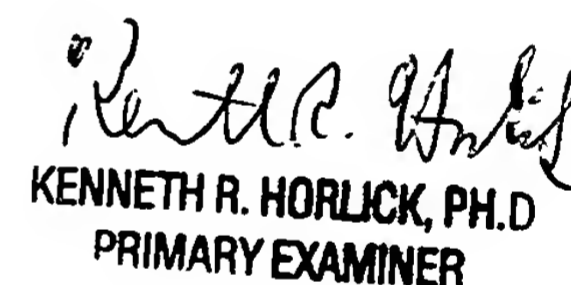
Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.



Young J. Kim  
Patent Examiner  
Art Unit 1637  
3/17/05

YOUNG J. KIM  
PATENT EXAMINER

yjk



KENNETH R. HORLICK, PH.D.  
PRIMARY EXAMINER

3/21/05